LIST OF CONTENTS

VOLUME 47

NUMBER 1

Qi-Li Feng, Kenneth G. Davey, Anthony S.D. Pang, Tim R. Ladd, Arthur Retnakaran, Bill L. Tomkins, Sichun Zheng, Subba R. Palli	1	Developmental expression and stress induction of glutathione *S*-transferase in the spruce budworm, *Choristoneura fumiferana*
S.A.L. Hayward, J.S. Bale, M.R. Worland, P. Convey	11	Influence of temperature on the hygropreference of the Collembolan, *Cryptopygus antarcticus*, and the mite, *Alaskozetes antarcticus* from the maritime Antarctic
M.S. Mayer	19	Nomographic correspondence between specialist cell responses, electroantennograms and the probability of behavioral response: the importance of comparable stimuli and a benchmark
Masashi Hotta, Takashi Okuda, Toshiharu Tanaka	31	*Cotesia kariyai* teratocytes: growth and development
Georg F. Rast, Peter Bräunig	43	Feeding-related motor patterns of the locust suboesophageal ganglion induced by pilocarpine and IBMX
P. Kalushkov, M. Hodková, O. Nedvêd, I. Hodek	55	Effect of thermoperiod on diapause intensity in *Pyrrhocoris apterus* (Heteroptera Pyrrhocoridae)
E.A. Bernays, K.L. Bright	63	Food choice causes interrupted feeding in the generalist grasshopper *Schistocerca americana*: further evidence for inefficient decision-making
Petra von Dungern, Hans Briegel	73	Enzymatic analysis of uricotelic protein catabolism in the mosquito *Aedes aegypti*
Seiji Tanaka	83	Effects of suppressed oviposition activity and flight muscle histolysis on food consumption and ovarian development in a wing-dimorphic cricket: an explanation for sporadic conclusions related to physiological trade-offs
C. Jaco Klok, Steven L. Chown	95	Critical thermal limits, temperature tolerance and water balance of a sub-Antarctic kelp fly, *Paractora dreuxi* (Diptera: Helcomyzidae)
	111	Contents of *Insect Biochemistry and Molecular Biology*
	113	Diary

NUMBER 2

C.G. Galizia, R. Menzel	115	The role of glomeruli in the neural representation of odours: results from optical recording studies
P. von Dungern, H. Briegel	131	Protein catabolism in mosquitoes: ureotely and uricotely in larval and imaginal *Aedes aegypti*
P.T. Cristofoletti, A.F. Ribeiro, Walter R. Terra	143	Apocrine secretion of amylase and exocytosis of trypsin along the midgut of *Tenebrio molitor* larvae
M. Goto, Y. Sekine, H. Outa, M. Hujikura, K. Suzuki	157	Relationships between cold hardiness and diapause, and between glycerol and free amino acid contents in overwintering larvae of the oriental corn borer, *Ostrinia furnacalis*
J. Russo, M. Brehélin, Y. Carton	167	Haemocyte changes in resistant and susceptible strains of *D. melanogaster* caused by virulent and avirulent strains of the parasitic wasp *Leptopilina boulardi*
D.R. Gray, F.W. Ravlin, J.A. Braine	173	Diapause in the gypsy moth: a model of inhibition and development
B. Laenen, N. De Decker, P. Steels, E. Van Kerkhove, S. Nicolson	185	An antidiuretic factor in the forest ant: purification and physiological effects on the Malpighian tubules
T. Amakawa	195	Effects of age and blood sugar levels on the proboscis extension of the blow fly *Phormia regina*
H. Saito	205	Blue biliprotein as an effective factor for cryptic colouration in *Rhodinia fugax* larvae

I Contents of *Insect Biochemistry and Molecular Biology*
III Diary

NUMBER 3

T.G. Shelton, A.G. Appel 213 Carbon dioxide release in *Coptotermes formosanus* Shiraki and *Reticulitermes flavipes* (Kollar): effects of caste, mass, and movement

P.E.M. Ribolla, A.T. Bijovsky, A.G. de Bianchi 225 Procathepsin and acid phosphatase are stored in *Musca domestica* yolk spheres

M.-P. Tu, R. Kou, Z.-S. Wang, J.G. Stoffolano Jr., C.-M. Yin 233 Immunolocalization and possible effect of a moth allatotropin-like substance in a fly, *Phormia regina* (Diptera: Calliphoridae)

M. Friedländer, A. Jeshtadi, S.E. Reynolds 245 The structural mechanism of trypsin-induced intrinsic motility in *Manduca sexta* spermatozoa in vitro

B.I.P. Barratt, M. Sutherland 257 Development of teratocytes associated with *Microctonus aethiopoides* Loan (Hymenoptera: Braconidae) in natural and novel host species

M.-J. Yu, K.W. Beyenbach 263 Leucokinin and the modulation of the shunt pathway in Malpighian tubules

A. Donini, H.-J. Agricola, A.B. Lange 277 Crustacean cardioactive peptide is a modulator of oviduct contractions in *Locusta migratoria*

R. Predel, R.J. Nachman 287 Efficacy of native FXPRLamides (pyrokinins) and synthetic analogs on visceral muscles of the American cockroach

M.P. Scott, S.T. Trumbo, P.A. Neese, W.D. Bailey, R.M. Roe 295 Changes in biosynthesis and degradation of juvenile hormone during breeding by burying beetles: a reproductive or social role?

W. Takken, J.J.A. van Loon, W. Adam 303 Inhibition of host-seeking response and olfactory responsiveness in *Anopheles gambiae* following blood feeding

I Contents of *Insect Biochemistry and Molecular Biology*
III Diary

NUMBER 4–5

R. Predel, R.J. Nachman, G Gäde 311 Myostimulatory neuropeptides in cockroaches: structures, distribution, pharmacological activities, and mimetic analogs

M. Yamashita, K. Iwabuchi 325 *Bombyx mori* prohemocyte division and differentiation in individual microcultures

K. Richter 333 Daily changes in neuroendocrine control of moulting hormone secretion in the prothoracic gland of the cockroach *Periplaneta americana* (L.)

Y. Outreman, A. Le Ralec, M. Plantegenest, B. Chaubet, J.S. Pierre 339 Superparasitism limitation in an aphid parasitoid: cornicle secretion avoidance and host discrimination ability

R.V. Barbehenn, S.L. Bumgarner, E.F. Roosen, M.M. Martin 349 Antioxidant defenses in caterpillars: role of the ascorbate-recycling system in the midgut lumen

R. Hopkin, J.H. Anstee, K. Bowler 359 An investigation into the effects of inhibitors of fluid production by *Locusta* Malpighian tubule Type I cells on their secretion and elemental composition

B. Hölldobler, E.D. Morgan, N.J. Oldham, J. Liebig 369 Recruitment pheromone in the harvester ant genus *Pogonomyrmex*

K.C. Daly, M.L. Durtschi, B.H. Smith 375 Olfactory-based discrimination learning in the moth, *Manduca sexta*

A. Stabentheiner 385 Thermoregulation of dancing bees: thoracic temperature of pollen and nectar foragers in relation to profitability of foraging and colony need

S.R. Misener, C.-P. Chen, V.K. Walker 393 Cold tolerance and proline metabolic gene expression in *Drosophila melanogaster*

S. Zhou, R.S. Criddle, E.J. Mitcham 401 Metabolic response of *Platynota stultana* pupae during and after extended exposure to elevated CO_2 and reduced O_2 atmospheres

J.P. Ianowski, M.J. O'Donnell 411 Transepithelial potential in Malpighian tubules of *Rhodnius prolixus*: lumen-negative voltages and the triphasic response to serotonin

D.L. Hendrix, M.E. Salvucci 423 Isobemisiose: an unusual trisaccharide abundant in the silverleaf whitefly, *Bemisia argentifolii*

S.P. Foster 433 Fatty acyl pheromone analogue-containing lipids and their roles in sex pheromone biosynthesis in the lightbrown apple moth, *Epipyhas postvittana* (Walker)

A. Peppuy, A. Robert, E. Semon, C. Ginies, M. Lettere, O. Bonnard, C. Bordereau 445 (*Z*)-dodec-3-en-1-ol, a novel termite trail pheromone identified after solid phase microextraction from *Macrotermes annandalei*

J. Meijerink, M.A.H. Braks, J.J.A. Van Loon 455 Olfactory receptors on the antennae of the malaria mosquito *Anopheles gambiae* are sensitive to ammonia and other sweat-borne components

I. Lang, B. Walz 465 Dopamine-induced epithelial K^+ and Na^+ movements in the salivary ducts of *Periplaneta americana*

R.L.L. Kellner 475 Suppression of pederin biosynthesis through antibiotic elimination of endosymbionts in *Paederus sabaeus*

V. Cuvillier-Hot, M. Cobb, C. Malosse, C. Peeters 485 Sex, age and ovarian activity affect cuticular hydrocarbons in *Diacamma ceylonense*, a queenless ant

M. Locke 495 The Wigglesworth Lecture: Insects for studying fundamental problems in biology

L. Burguiere, F. Marion-Poll, A. Cork 509 Electrophysiological responses of female *Helicoverpa armigera* (Hübner) (Lepidoptera; Noctuidae) to synthetic host odours

F.G. Noriega, K.A. Edgar, W.G. Goodman, D.K. Shah, M.A. Wells 515 Neuroendocrine factors affecting the steady-state levels of early trypsin mRNA in *Aedes aegypti*

D.W. Bowles, C.M. Gillen 523 Characterization of Rb uptake into Sf9 cells using cation chromatography: evidence for a K–Cl cotransporter

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 6

W.W. Hoback, D.W. Stanley 533 Insects in hypoxia

D.K. Lewis, J.Q. Campbell, S.M. Sowa, M.-E. Chen, S.B. Vinson, L.L. Keeley 543 Characterization of vitellogenin in the red imported fire ant, *Solenopsis invicta* (Hymenoptera: Apocrita: Formicidae)

A. Couty, G. de la Viña, S.J. Clark, L. Kaiser, M.-H. Pham-Delegue, G.M. Poppy 553 Direct and indirect sublethal effects of *Galanthus nivalis* agglutinin (GNA) on the development of a potato-aphid parasitoid, *Aphelinus abdominalis* (Hymenoptera: Aphelinidae)

M.W. Lorenz, R. Kellner, W. Völkl, K.H. Hoffmann, J. Woodring 563 A comparative study on hypertrehalosaemic hormones in the Hymenoptera: sequence determination, physiological actions and biological significance

Y. Nakamatsu, Y. Gyotoku, T. Tanaka 573 The endoparasitoid *Cotesia kariyai* (Ck) regulates the growth and metabolic efficiency of *Pseudaletia separata* larvae by venom and Ck polydnavirus

E. Kristiansen, K.E. Zachariassen 585 Effect of freezing on the transmembrane distribution of ions in freeze-tolerant larvae of the wood fly *Xylophagus cinctus* (Diptera, Xylophagidae)

Y. Yerushalmi, M.P. Pener 593 The response of a homochrome grasshopper, *Oedipoda miniata*, to the dark-colour-inducing neurohormone (DCIN) of locusts

M.J. Loeb, P.A.W. Martin, R.S. Hakim, S. Goto, M. Takeda 599 Regeneration of cultured midgut cells after exposure to sublethal doses of toxin from two strains of *Bacillus thuringiensis*

J. Clark, A.B. Lange 607 Evidence of a neural loop involved in controlling spermathecal contractions in *Locusta migratoria*

O. Lung, L. Kuo, M.F. Wolfner 617 Drosophila males transfer antibacterial proteins from their accessory gland and ejaculatory duct to their mates

R. Ziegler, M.M. Ibrahim 623 Formation of lipid reserves in fat body and eggs of the yellow fever mosquito, *Aedes aegypti*

D. Hyde, P. Baldrick, S.L. Marshall, J.H. Anstee 629 Rubidium reduces potassium permeability and fluid secretion in Malpighian tubules of *Locusta migratoria*, L

C. Rossini, A. González, T. Eisner 639 Fate of an alkaloidal nuptial gift in the moth *Utetheisa ornatrix*: systemic allocation for defense of self by the receiving female

I Erratum

III Contents of *Insect Biochemistry and Molecular Biology*

V Diary

NUMBER 7

Mini-review

S.L. Chown 649 Physiological variation in insects: hierarchical levels and implications

Regular papers

M.J. Klowden 661 Sexual receptivity in *Anopheles gambiae* mosquitoes: absence of control by male accessory gland substances

C. Keating, I. Orchard 667 Dopamine induces hyperpolarization of locust salivary gland acinar cells via D_1-like receptors

K. Molnár, N. Holderith Borhegyi, G. Csikós, M. Sass 675 Distribution of serpins in the tissues of the tobacco hornworm (*Manduca sexta*) larvae. Existence of new serpins possibly encoded by a gene distinct from the serpin-1 gene

E. Hansen-Delkeskamp 689 Responsiveness of antennal taste hairs of the apterygotan insect, *Thermobia domestica* (Zygentoma); an electrophysiological investigation

G.D. Broufas, D.S. Koveos 699 Rapid cold hardening in the predatory mite *Euseius (Amblyseius) finlandicus* (Acari: Phytoseiidae)

M. Goto, Y.-P. Li, S. Kayaba, S. Outani, K. Suzuki 709 Cold hardiness in summer and winter diapause and post-diapause pupae of the cabbage armyworm, *Mamestra brassicae* L. under temperature acclimation

D.S. Richard, M. Gilbert, B. Crum, D.M. Hollinshead, S. Schelble, D. Scheswohl 715 Yolk protein endocytosis by oocytes in *Drosophila melanogaster*: immunofluorescent localization of clathrin, adaptin and the yolk protein receptor

S.A. Johnson, S.W. Nicolson 725 Pollen digestion by flower-feeding Scarabaeidae: protea beetles (Cetoniini) and monkey beetles (Hopliini)

U.E. Simon, R.F.A. Moritz, R.M. Crewe 735 The ontogenetic pattern of mandibular gland components in queenless worker bees (*Apis mellifera capensis* Esch.)

A.H. Kollien, T. Grospietsch, T. Kleffmann, I. Zerbst-Boroffka, G.A. Schaub 739 Ionic composition of the rectal contents and excreta of the reduviid bug *Triatoma infestans*

N. Mori, H.T. Alborn, P.E.A. Teal, J.H. Tumlinson 749 Enzymatic decomposition of elicitors of plant volatiles in *Heliothis virescens* and *Helicoverpa zea*

J. Godlewski, B. Kłudkiewicz, K. Grzelak, B. Cymborowski 759 Expression of larval hemolymph proteins (*Lhp*) genes and protein synthesis in the fat body of greater wax moth (*Galleria mellonella*) larvae during diapause

A. Mizoguchi 767 Effects of juvenile hormone on the secretion of prothoracicotropic hormone in the last- and penultimate-instar larvae of the silkworm *Bombyx mori*

Elaine Fitches, Stephen D. Woodhouse, John P. Edwards, John A. Gatehouse 777 In vitro and in vivo binding of snowdrop (*Galanthus nivalis* agglutinin; GNA) and jackbean (*Canavalia ensiformis*; Con A) lectins within tomato moth (*Lacanobia oleracea*) larvae; mechanisms of insecticidal action

Matthias Dettloff, Brigitta Kaiser, Andreas Wiesner 789 Localization of injected apolipophorin III in vivo — new insights into the immune activation process directed by this protein

NUMBER 8

Editorial Announcememt

799 Journal of Insect Physiology 2000 REFEREES

Editorial

D. Cosens, M. Vaz Nunes 803 Professor David S. Saunders: a tribute

Mini-reviews

W.E. Bradshaw, C.M. Hołzapfel 809 Phenotypic evolution and the genetic architecture underlying photoperiodic time measurement

J. Hardie, M. Vaz Nunes 821 Aphid photoperiodic clocks

F.R. Jackson, A.J. Schroeder, M.A. Roberts, G.P. McNeil, K. Kume, B. Akten 833 Cellular and molecular mechanisms of circadian control in insects

D. Moore 843 Honey bee circadian clocks: behavioral control from individual workers to whole-colony rhythms

Research papers

P. Bebas, B. Cymborowski, J.M. Giebultowicz 859 Circadian rhythm of sperm release in males of the cotton leafworm, *Spodoptera littoralis*: in vivo and in vitro studies

Y. Hamasaka, Y. Watari, T. Arai, H. Numata, S. Shiga 867 Retinal and extraretinal pathways for entrainment of the circadian activity rhythm in the blow fly, *Protophormia terraenovae*

C. Helfrich-Förster 877 The locomotor activity rhythm of *Drosophila melanogaster* is controlled by a dual oscillator system

A. Okamoto, H. Mori, K. Tomioka 889 The role of the optic lobe in circadian locomotor rhythm generation in the cricket, *Gryllus bimaculatus*, with special reference to PDH-immunoreactive neurons

E. Pyża, B. Cymborowski 897 Circadian rhythms in behaviour and in the visual system of the blow fly, *Calliphora vicina*

D.S. Richard, J.M. Jones, M.R. Barbarito, S. Cerula, J.P. Detweiler, S.J. Fisher, D.M. Brannigan, D.M. Scheswohl 905 Vitellogenesis in diapausing and mutant *Drosophila melanogaster*: further evidence for the relative roles of ecdysteroids and juvenile hormones

J.P. Rinehart, R.A. Cikra-Ireland, R.D. Flannagan, D.L. Denlinger 915 Expression of ecdysone receptor is unaffected by pupal diapause in the flesh fly, *Sarcophaga crassipalpis*, while its dimerization partner, USP, is downregulated

G.R. Warman, R.D. Lewis 923 Molecular simulation modelling of the circadian system of the blow fly, *Lucilia cuprina*

X. Vafopoulou, C.G.H. Steel 935 Induction of rhythmicity in prothoracicotropic hormone and ecdysteroids in *Rhodnius prolixus*: roles of photic and neuroendocrine Zeitgebers

H. Yamano, Y. Watari, T. Arai, M. Takeda 943 Melatonin in drinking water influences a circadian rhythm of locomotor activity in the house cricket, *Acheta domesticus*

NUMBER 9

L. Guoqing, H. Zhaojun, M. Lili, Q. Xiaoran, C. Changkun, W. Yinchang 951 Natural oviposition-deterring chemicals in female cotton bollworm, *Helicoverpa armigera* (Hubner)

R.R. Snook, T.A. Markow 957 Mating system evolution in sperm-heteromorphic *Drosophila*

M.D. Lavine, M.R. Strand 965 Surface characteristics of foreign targets that elicit an encapsulation response by the moth *Pseudoplusia includens*

M. Aluja, F. Díaz-Fleischer, D.R. Papaj, G. Lagunes, J. Sivinski 975 Effects of age, diet, female density, and the host resource on egg load in *Anastrepha ludens* and *Anastrepha obliqua* (Diptera: Tephritidae)

M.C. Rosi, N. Isidoro, S. Colazza, F. Bin 989 Source of the host marking pheromone in the egg parasitoid *Trissolcus basalis* (Hymenoptera: Scelionidae)

J.B. Nardi, C. Gao, M.R. Kanost 997 The extracellular matrix protein lacunin is expressed by a subset of hemocytes involved in basal lamina morphogenesis

N. Minois 1007 Resistance to stress as a function of age in transgenic *Drosophila melanogaster* overexpressing Hsp70

P. Zanetti, F.R. Dani, S. Destri, D. Fanelli, A. Massolo, G. Moneti, G. Pieraccini, S. Turillazzi 1013 Nestmate recognition in *Parischnogaster striatula* (Hymenoptera Stenogastrinae), visual and olfactory recognition cues

H. Sjursen, M. Bayley, M. Holmstrup 1021 Enhanced drought tolerance of a soil-dwelling springtail by pre-acclimation to a mild drought stress

E.A. Bernays, R.F. Chapman 1029 Taste cell responses in the polyphagous arctiid, *Grammia geneura*: towards a general pattern for caterpillars

D.J. Emlen, H.F. Nijhout 1045 Hormonal control of male horn length dimorphism in *Onthophagus taurus* (Coleoptera: Scarabaeidae): a second critical period of sensitivity to juvenile hormone

A. Telang, V. Booton, R.F. Chapman, D.E. Wheeler 1055 How female caterpillars accumulate their nutrient reserves

M.C. Larsson, W.S. Leal, B.S. Hansson 1065 Olfactory receptor neurons detecting plant odours and male volatiles in *Anomala cuprea* beetles (Coleoptera: Scarabaeidae)

F.L. Wäckers 1077 A comparison of nectar- and honeydew sugars with respect to their utilization by the hymenopteran parasitoid *Cotesia glomerata*

T.L. Page, C. Mans, G. Griffeth 1085 History dependence of circadian pacemaker period in the cockroach

1095 Erratum

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 10

Mini review

A. Veerman 1097 Photoperiodic time measurement in insects and mites: a critical evaluation of the oscillator-clock hypothesis

T. Dinkel, K. Lunau 1111 How drone flies (*Eristalis tenax* L., Syrphidae, Diptera) use floral guides to locate food sources

M.M. Elekonich, D.J. Schulz, G. Bloch, G.E. Robinson 1119 Juvenile hormone levels in honey bee (*Apis mellifera* L.) foragers: foraging experience and diurnal variation

C. Cresoni-Pereira, F.S. Zucoloto 1127 Dietary self-selection and discrimination threshold in wild *Anastrepha obliqua* females (Diptera, Tephritidae)

M. Sugimura, C. Hirayama, M. Nakamura 1133 Selective transport of the mulberry leaf urease from the midgut into the larval hemolymph of the silkworm, *Bombyx mori*

G.D. Yocum 1139 Differential expression of two *HSP70* transcripts in response to cold shock, thermoperiod, and adult diapause in the Colorado potato beetle

A.J. Zera, A. Larsen 1147 The metabolic basis of life history variation: genetic and phenotypic differences in lipid reserves among life history morphs of the wing-polymorphic cricket, *Gryllus firmus*

J.S. Bale, M.R. Worland, W. Block 1161 Effects of summer frost exposures on the cold tolerance strategy of a sub-Antarctic beetle

S.A. Jones, D. Raubenheimer 1169 Nutritional regulation in nymphs of the German cockroach, *Blattella germanica*

Y.-P. Li, M. Goto, S. Ito, Y. Sato, K. Sasaki, N. Goto 1181 Physiology of diapause and cold hardiness in the overwintering pupae of the fall webworm *Hyphantria cunea* (Lepidoptera: Arctiidae) in Japan

M. Beck, A. Reineke, H. Lorenz, U. Theopold, O. Schmidt 1189 Two distinct reproductive strategies are correlated with an ovarian phenotype in co-existing parthenogenetic strains of a parasitic wasp

M. Bayley, S.O. Petersen, T. Knigge, H.-R. Köhler, M. Holmstrup 1197 Drought acclimation confers cold tolerance in the soil collembolan *Folsomia candida*

K. Sasaki, T. Nagao 1205 Distribution and levels of dopamine and its metabolites in brains of reproductive workers in honeybees

V. Sheeba, M.K. Chandrashekaran, A. Joshi, V. Kumar Sharma 1217 A case for multiple oscillators controlling different circadian rhythms in *Drosophila melanogaster*

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 11

Mini-Review

K.J. Yagi, S.S. Tobe 1227 The radiochemical assay for juvenile hormone biosynthesis in insects: problems and solutions

W. Zhu, A. Vandingenen, R. Huybrechts, T. Vercammen, G. Baggerman, A. De Loof, C.P. Poulos, A. Velentza, M. Breuer 1235 Proteolytic breakdown of the Neb-trypsin modulating oostatic factor (Neb-TMOF) in the hemolymph of different insects and its gut epithelial transport

A.N. Pearce, Z.Y. Huang, M.D. Breed 1243 Juvenile hormone and aggression in honey bees

W.E. Khafagi, E.M. Hegazi 1249 Effects of juvenile hormones and precocenes on the immune response of *Spodoptera littoralis* larvae to supernumerary larvae of the solitary parasitoid, *Microplitis rufiventris* Kok.

B.L. Weiss, W. Reuben Kaufman 1261 The relationship between 'critical weight' and 20-hydroxyecdysone in the female ixodid tick, *Amblyomma hebraeum*

V. Koštál, K. Shimada 1269 Malfunction of circadian clock in the *non-photoperiodic-diapause* mutants of the drosophilid fly, *Chymomyza costata*

A.E. Santos, M.M.G. Bitondi, Z.L.P. Simões 1275 Hormone-dependent protein patterns in integument and cuticular pigmentation in *Apis mellifera* during pharate adult development

C.P. Silva, W.R. Terra, M.F.G. de Sá, R.I. Samuels, E.M. Isejima, T.D. Bifano, J.S. Almeida 1283 Induction of digestive α-amylases in larvae of *Zabrotes subfasciatus* (Coleoptera: Bruchidae) in response to ingestion of common bean α-amylase inhibitor 1

F. Ortego, C. Novillo, J.J. Sánchez-Serrano, P. Castañera 1291 Physiological response of Colorado potato beetle and beet armyworm larvae to depletion of wound-inducible proteinase inhibitors in transgenic potato plants

J.G. Sørensen, V. Loeschcke 1301 Larval crowding in *Drosophila melanogaster* induces Hsp70 expression, and leads to increased adult longevity and adult thermal stress resistance

S. Murakami, M.T. Itoh 1309 Effects of aggression and wing removal on brain serotonin levels in male crickets, *Gryllus bimaculatus*

A. Hochuli, B. Lanzrein 1313 Characterization of a 212 kD protein, released into the host by the larva of the endoparasitoid *Chelonus inanitus* (Hymenoptera, Braconidae)

K. Sláma, L. Neven 1321 Active regulation of respiration and circulation in pupae of the codling moth *(Cydia pomonella)*

Z. Zhao, A.J. Zera 1337 Enzymological and radiotracer studies of lipid metabolism in the flight-capable and flightless morphs of the wing-polymorphic cricket, *Gryllus firmus*

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

NUMBER 12

D.J. Borash, G.T. Ho 1349 Patterns of selection: stress resistance and energy storage in density-dependent populations of *Drosophila melanogaster*

A. Couty, R.E. Down, A.M.R. Gatehouse, L. Kaiser, M.-H. Pham-Delègue, G.M. Poppy 1357 Effects of artificial diet containing GNA and GNA-expressing potatoes on the development of the aphid parasitoid *Aphidius ervi* Haliday

X. Wei, F. Xue, A. Li 1367 Photoperiodic clock of diapause induction in *Pseudopidorus fasciata*

A. Addo-Bediako, S.L. Chown, K.J. Gaston 1377 Revisiting water loss in insects: a large scale view

E. Fitches, C. Ilett, A.M.R. Gatehouse, L.N. Gatehouse, R. Greene, J.P. Edwards, J.A. Gatehouse 1389 The effects of *Phaseolus vulgaris* erythro- and leucoagglutinating isolectins (PHA-E and PHA-L) delivered via artificial diet and transgenic plants on the growth and development of tomato moth (*Lacanobia oleracea*) larvae; lectin binding to gut glycoproteins in vitro and in vivo

D. Sun, J.E. Steele 1399 Regulation of intracellular calcium in dispersed fat body trophocytes of the cockroach, *Periplaneta americana*, by hypertrehalosemic hormone

J.S. Miller, D.W. Stanley 1409 Eicosanoids mediate microaggregation reactions to bacterial challenge in isolated insect hemocyte preparations

M. Alleyne, R.N. Wiedenmann, R.R. Diaz 1419 Quantification and development of teratocytes in novel-association host–parasitoid combinations

S.G. Naidu 1429 Water balance and osmoregulation in *Stenocara gracilipes*, a wax-blooming tenebrionid beetle from the Namib Desert

D.X. Hammer, J. Seigert, M.O. Stone, H.G. Rylander III, A.J. Welch 1441 Infrared spectral sensitivity of *Melanophila acuminata*

K. Konno, S. Okada, C. Hirayama 1451 Selective secretion of free glycine, a neutralizer against a plant defense chemical, in the digestive juice of the privet moth larvae

M.R.V. Sant'Anna, L. Diotaiuti, A. de Figueiredo Gontijo, N. de Figueiredo Gontijo, M.H. Pereira 1459 Feeding behaviour of morphologically similar Rhodnius species: influence of mechanical characteristics and salivary function

T.P. Good, M. Tatar 1467 Age-specific mortality and reproduction respond to adult dietary restriction in *Drosophila melanogaster*

I Contents of *Insect Biochemistry and Molecular Biology*

III Diary

IV Volume contents and Author Index, Volume 47